

AMENDMENTS TO THE CLAIMS

Claims 1-24 (Cancelled.)

25. (Currently Amended) ~~The MOS transistor of claim 22 and further comprising:~~ A MOS transistor formed in a semiconductor material of a first conductivity type, the MOS transistor comprising:

a plurality of source strips of a second conductivity type formed in the semiconductor material, a source strip having:

a center chord that lies along a longitudinal centerline of the source strip;

a first edge having a plurality of spaced-apart first points and a plurality of spaced-apart second points; and

an opposing second edge having a plurality of spaced-apart third points and a plurality of spaced-apart fourth points, each first point having a corresponding third point and being separated from the corresponding third point by a first distance measured along a first line normal to the center chord, each second point having a corresponding fourth point and being separated from the corresponding fourth point by a second distance measured along a second line normal to the center chord, the second distance being less than the first distance;

a plurality of drain strips of the second conductivity type formed in the semiconductor material such that a drain strip lies between adjacent pairs of source strips;

a plurality of channel strips located between the source and drain strips such that a channel strip is located between each adjacent source and drain strip;

a plurality of gate isolation layers formed on the semiconductor material over the channel strips;

a plurality of gate strips formed on the plurality of gate isolation layers over the channel strips between source strips and drain strips;

a layer of isolation material that contacts the semiconductor material and the source strip;

a plurality of first contacts formed through the layer of isolation material to make electrical connections with the source strip, the first contacts being connected to regions of the source strip that lie between the first points and the corresponding third points; and

a plurality of first metal traces formed on the layer of isolation material to make electrical connections with the plurality of first contacts.

26. (Previously Presented) The MOS transistor of claim 25 wherein no contacts are formed through the layer of isolation material to make electrical connection to regions of the source strip that lie between the second and fourth points.

27. (Cancelled)

28. (Previously Presented) The MOS transistor of claim 25 and further comprising:

a layer of insulation material that lies over the layer of isolation material and the metal traces;

a plurality of vias formed through the layer of insulation material to be electrically connected with the source strip; and

a single source metal region formed on the layer of insulation material to make electrical connections with the plurality of vias, the single source metal region covering more than 25% and less than 50% of the plurality of source and drain strips.

29. (Currently Amended) The MOS transistor of claim ~~22~~ 25 wherein a drain strip includes:

a middle chord that lies along a longitudinal centerline of the drain strip;

a first edge having a plurality of spaced-apart fifth points and a plurality of spaced-apart sixth points; and

an opposing second edge having a plurality of spaced-apart seventh points and a plurality of spaced-apart eighth points, each fifth point having a corresponding seventh point and being separated from the corresponding seventh point by second distance measured along the first line, each sixth point having a corresponding eighth point and being separated from the corresponding eighth point by the first distance measured along the second line.

30. (Previously Presented) The MOS transistor of claim 29 wherein a sixth point lies between an adjacent pair of fifth points.

31. (Previously Presented) The MOS transistor of claim 30 wherein an eighth point lies between an adjacent pair of seventh points.

32. (Currently Amended) The MOS transistor of claim 29 and further comprising:

~~a layer of isolation material that contacts the semiconductor material, the source strip, and the drain strip;~~

a plurality of second contacts formed through the layer of isolation material to make electrical connections with ~~the source strip and the drain strip, a first number of contacts being connected to regions of the source strip that lie between the first points and the corresponding third points,~~ a second number of contacts being

connected to regions of the drain strip that lie between the sixth points and the corresponding eighth points; and

a plurality of second metal traces formed on the layer of isolation material to make electrical connections with the plurality of second contacts.

33. (Previously Presented) The MOS transistor of claim 32 wherein no contacts are formed through the layer of isolation material to make electrical connections to regions that lie between the second and fourth points, and the fifth and seventh points.

34. (Currently Amended) The MOS transistor of claim 29 and further comprising:

~~a layer of isolation material that contacts the semiconductor material and the source strip;~~

a plurality of second contacts formed through the layer of isolation material to make electrical connections with ~~the source strip and~~ the drain strip, the second contacts being connected to ~~each region of the source strip that lies between a first point and a corresponding third point, and~~ each region of the drain strip that lies between a sixth point and a corresponding eighth point; and

a plurality of second metal traces formed on the layer of isolation material to make electrical connections with the plurality of second contacts.

35. (Currently Amended) The MOS transistor of claim 34 and further comprising:

a layer of insulation material that lies over the layer of isolation material and the first and second metal traces;

a plurality of vias formed through the layer of insulation material to be electrically connected with the source strip and the drain strip;

a single source metal region formed on the layer of insulation material to make electrical connections with the plurality of vias electrically connected to the source strip, the single source metal region covering more than 25% and less than 50% of the plurality of source and drain strips; and

a single drain metal region formed on the layer of insulation material to make electrical connections with the plurality of vias electrically connected to the drain strip, the single drain metal region covering more than 25% and less than 50% of the plurality of source and drain strips.

36. (Previously Presented) The MOS transistor of claim 35 and further comprising:

a MOS device having a source connected to a ground node, a gate, and a drain electrically connected to the plurality of drain strips; and

a gate signal generator that outputs a first gate signal to the plurality of gate strips, a second gate signal to the gate of the MOS device, and a control signal, the first and second gate signals being non-overlapping;

a first switch connected to the control signal, and the semiconductor material of the first conductivity type;

a second switch connected to the ground node and the control signal; and

a resistor that is connected to the semiconductor material of the first conductivity type, a current flowing through the resistor to the ground node when the second switch is closed, and not flowing when the second switch is open.

37. (Previously Presented) The MOS transistor of claim 36 wherein the control signal has a logic state opposite to the logic state of the first gate signal.

38. (Previously Presented) The driver of claim 36 and further comprising:

a third switch connected to the second switch and the resistor that is controlled by an enable signal; and

a fourth switch connected to a voltage source and the resistor that is controlled by the enable signal.

39. (New) A MOS transistor formed in a semiconductor material of a first conductivity type, the MOS transistor comprising:

a plurality of source strips of a second conductivity type formed in the semiconductor material;

a plurality of drain strips of the second conductivity type formed in the semiconductor material such that a drain strip lies between adjacent pairs of source strips;

a plurality of channel strips located between the source and drain strips such that a channel strip is located between each adjacent source and drain strip; and

a plurality of gate strips formed over the channel strips between source strips and drain strips, the plurality of gate strips being isolated from the plurality of channel strips, each gate strip having a serpentine shape.

40. (New) The MOS transistor of claim 39 wherein odd gate strips have a first serpentine shape and even gate strips have a second serpentine shape, the second serpentine shape being an inverse of the first serpentine shape.

41. (New) The MOS transistor of claim 40 wherein a peak of the first serpentine shape substantially corresponds with a valley of the second serpentine shape measured along a line normal to a length of the gate strips.

42. (New) The MOS transistor of claim 39 wherein adjacent gate strips are arranged so that:

a source strip has a width that alternates between a wider region and a narrower region along a length; and

a drain strip has a width that alternates between a wider region and a narrower region along a length.

43. (New) The MOS transistor of claim 41 and further comprising:

a layer of isolation material that contacts the semiconductor material, the source strip, and the drain strip;

a plurality of first contacts formed through the layer of isolation material to make electrical connections with the source strip, the first contacts being connected to the wider regions of the source strip;

a plurality of second contacts formed through the layer of isolation material to make electrical connections with the drain strip, the second contacts being connected to the wider regions of the drain strip; and

a plurality of metal traces formed on the layer of isolation material to make electrical connections with the plurality of first and second contacts.

44. (New) The MOS transistor of claim 43 and further comprising:

a layer of insulation material that lies over the layer of isolation material and the metal traces;

a plurality of first vias formed through the layer of insulation material to be electrically connected with the source strip; and

a single source metal region formed on the layer of insulation material to make electrical connections with the plurality of first vias, the single source metal region covering more than 25% and less than 50% of the plurality of source and drain strips.

45. (New) The MOS transistor of claim 44 and further comprising:  
a plurality of second vias formed through the layer of insulation material to be electrically connected with the drain strip; and  
a single drain metal region formed on the layer of insulation material to make electrical connections with the plurality of second vias, the single drain metal region covering more than 25% and less than 50% of the plurality of source and drain strips.